

# South Delta Flood Conveyance Plan

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*[The maps and descriptions are currently under review by subject Reclamation Districts and not included in this draft.]*

Reclamation District 1	San Joaquin County (Union Island)
Reclamation District 2	San Joaquin County (Union Island)
Reclamation District 17	San Joaquin County (Mossdale)
Reclamation District 544	San Joaquin County (Lower Roberts)
Reclamation District 773	San Joaquin County (Fabian Tract)
Reclamation District 1007	San Joaquin County (Pico and Nagle)
Reclamation District 2058	San Joaquin County (Pescadero)
Reclamation District 2062	San Joaquin County (Stewart Tract)
Reclamation District 2064	San Joaquin County (River Junction)
Reclamation District 2075	San Joaquin County (McMullin Ranch)
Reclamation District 2085	San Joaquin County (Kasson District)
Reclamation District 2089	San Joaquin County (Stark Tract)
Reclamation District 2094	San Joaquin County (Walthall)
Reclamation District 2095	San Joaquin County (Paradise Junction)
Reclamation District 2096	San Joaquin County (Wetherbee Lake)
Reclamation District 2107	San Joaquin County (Mossdale)

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- CalFed Funding Bills

## Introduction

The document presented herewith endeavors:

- 1) To establish the flood conveyance objectives that should be achieved;
- 2) To identify the types of measures that could address those objectives on a sustainable basis for each type of impediment to flow or inability to sustain flow;
- 3) To preliminarily identify the approximate magnitude of the measures that may be needed to address each type of flow impairment, subject to further detailed engineering analyses;
- 4) To urge the State Reclamation Board and the U.S. Army Corps of Engineers to accept in concept the approach described in this report and to diligently pursue the evaluations and detailed engineering analysis needed to develop a plan and conduct environmental review in accordance with CEQA and NEPA, and;
- 5) To urge these agencies to pursue authorization and funding for the engineering analyses and then for the prompt implementation of a final plan that will provide on a sustainable basis the flood conveyance capabilities that are designed to achieve the objectives of the conceptual plan.



## **Section 1.0 - Background Discussion of Floods and Control Measures**

### **A. Recent History**

In January 1997, major storms throughout California resulted in record flows on many rivers and caused considerable damage. On the San Joaquin River, levees failed in 27 locations causing significant damage throughout the basin. After the 1997 flood events on the Sacramento and San Joaquin River systems, the United States Army Corps of Engineers ("Corps") and the California State Reclamation Board ("Reclamation Board") undertook to develop the *Sacramento and San Joaquin River Basins California Comprehensive Study* ("Comprehensive Plan") for flood conveyance in the Central Valley of California (the most recent draft is dated December, 2003). As part of the development of this Comprehensive Plan, the Corps and the Reclamation Board encouraged local reclamation districts to prepare individual flood control proposals, which were anticipated to eventually become part of the larger Comprehensive Plan.

In 2003, the South Delta Water Agency ("SDWA") and Califia LLC dba River Islands at Lathrop ("River Islands") entered into an Agreement for Joint Action. One of the provisions of that MOU committed the parties to assist the local reclamation districts within the boundaries of the SDWA in developing an area-wide flood control proposal. This Study is the first step in that process.

Pursuant to the MOU, Alexander Hildebrand, a Director and Secretary of SDWA, and Darryl Foreman, LP+E Inc. Planning Consultant on behalf of River Islands contacted the relevant reclamation districts, and with their representatives discussed local flood control issues, inspected levee cross-sections, heights, and composition, and gathered historical flood flow information. This Study contains information compiled during these discussions and investigations along with additional research.

Section 1.D. of this study describes the types of floods, river flows during floods, levee designs, and existing flood control improvements in the South Delta. Section 3 includes a discussion of possible measures which would enhance the functioning of the existing Corps levees.

## **B. Study Area**

The Study Area includes the reclamation districts located within the boundaries of the South Delta Water Agency. The 16 reclamation districts within those boundaries are shown numbered and outlined with yellow boundaries on the aerial photo located at Section 4.1 hereinafter. The complete boundary lines of RD 1, 2 (both on Union Island), RD 17 (Mossdale) and RD 544 (Lower Roberts Tract) are not included on the aerial photo due to the scale of the photo used. Clifton Court Forebay is to the North West of the photo and the Stanislaus River to the South East. The area shown depicts approximately 180,000 acres.

## **C. Description of Corps Levee System**

"Landowners [beginning in the 1800's] performed early levee construction in the Central Valley to address local flooding problems. They did not consider the hydraulic impacts on other areas, nor the natural processes of the rivers. Hydraulic mining between 1853 and 1854 worsened the flooding problems by washing away the sides of mountains and depositing millions of tons of silt, sand, and gravel into rivers and streams. In the early 1900's, the Federal and State Governments began construction of system-wide flood management facilities, including levees, weirs, and bypass channels. This included constructing new facilities and reconstructing existing private facilities. The Corps constructed, and in many cases reconstructed, the San Joaquin River Flood Control Project levees from already existing private levees. The Reclamation Board, accepted the assurances of operating and maintaining the Federal projects under the authority of the Flood Control Act of 1944. In accordance with State law, most of the operation and maintenance responsibilities have been delegated to local districts." [Excerpted from the Comprehensive Study pages 6-8.]

The federal project levees on the San Joaquin River system between Vernalis and Paradise Cut were purported to be designed to contain peak flows on the River of 52,000 cfs. At the time the levees were redesigned/built to meet the then existing Corps standards in the 1950's, this capacity was thought to be sufficient protection against a 50-year flood event.

The draft Comprehensive Plan generally deals with the conveyance of flood flows on the San Joaquin River down to Vernalis and not the passage of those flows to the deeper and wider channels of the Central Delta. Consequently, this Study focuses on the area within the South Delta Water Agency which is, approximately, from Vernalis to the Central Delta.

## **D. Flood Types, Frequencies, and Duration**

Flood events in the South Delta have historically resulted from spring and early summer snowmelts and from peak flood events in the winter. Spring and early summer floods result from the rapid melting of heavy snow packs caused either by warm weather or rains, or a combination thereof. These snowmelt floods have not exceeded 52,000 cfs on the San Joaquin River at Vernalis according to public records at least since 1950. The 52,000 cfs flood control capacity translates to an approximate 32.2-foot (above mean sea level) stage at Vernalis. However, the flood flows can be of long duration so that the levee cross-section and material comprising the levees near Vernalis must be able to withstand extended soaking. For example, the 1983 flood lasted from the beginning of major snowmelt until August. A future flood control improvement design, therefore, should minimize the risk of levee failure from snowmelt floods.

Winter rainfall floods can produce higher flows, but peak flows in excess of 52,000 cfs at Vernalis typically only last a week or less as in the 1997 flood.

The following major rain floods have occurred:

➤ March 16, 1938	51,200 cfs
➤ December 9, 1950	79,000 cfs
➤ December 25, 1955	50,900 cfs
➤ January 27, 1969	52,600 cfs
➤ March 7, 1983	45,000 cfs
➤ January 5, 1997	75,600 cfs

The 1997 flood provides the most recent example of the flood events and associated damage that have historically plagued the South Delta. This event caused numerous levee failures between Vernalis and the Central Delta and lands within and beyond reclamation districts were flooded for several weeks. Hundreds of homes were flooded. Hundreds of

people and thousands of dairy cattle and other livestock had to be evacuated on short notice. The cost of levee and erosion repairs, and repairs to homes and other structures was substantial. Specific information regarding costs estimates have been produced by FEMA and are available to the public.

The public record of levee failures and near failures during flood events has shown that the levees in Reclamation Districts 2064 and 2075 have been unreliable for floods well below 52,000 cfs particularly if the floods last for a long period of time. For example, one of the reasons that the levees within the San Joaquin County portion of the San Joaquin River did not break during the 1969 flood event is because the San Joaquin River levee breaks that occurred within Stanislaus County reduced the flood stage in San Joaquin County. Pursuant to the United States Geological Survey's ("USGS") peak stream flow data, the 1997 flood flow of 75,600 cfs at Vernalis, would have raised flood stage levels at Vernalis to approximately 34.9 feet if levees were able to hold at that level; nearly two and one half feet above the original design capacity.

The frequency of historic San Joaquin River flooding has been reduced by construction of larger dams on the Stanislaus, Tuolumne, and Merced Rivers due to the flood control component of those facilities. However, since those facilities are only able to control floodwaters which enter the rivers above the dams (and then only a portion thereof), downstream areas have continued to have floods such as those in 1980, 1982, 1983, 1986, 1997, and 1998. During flood events resulting from rains, there are substantial flows entering the streams below the dams on the east side of the Valley and from streams on the west side of the Valley such as Panoche and Orestimba Creeks, which do not have flood control structures.

#### **E. Levee designs**

Most of the levees in the South Delta are "project" levees that were designed and built to current status by the U.S. Army Corps of Engineers. In the 1960's, these levees were raised where necessary in order to have three feet of free board above river stage when the flow at Vernalis was 52,000 cfs. Some levees, including those of RD 2062, were already constructed at heights that were equal to or above this elevation, and thus, were adopted into the project levee system without requiring further raising.



The width of the levees in the system are not uniformly consistent; differing somewhat depending on the location of the levees within the different reclamation districts. For example, portions of levees located in Reclamation Districts 2064, 2075, and 2089 are narrower than other levees in the area. It appears that the levee width in each district and the steepness of the sides of the levees were in some instances designed without considering the levee composition or the soil conditions underneath the levee. This failure to take into account these differing conditions may have been a contributing factor to levee failures that occurred at Vernalis flows well below 52,000 cfs.

Protection of lands within any reclamation district depends not just on the levees protecting that district, but also on the levees of nearby districts whose flood waters can spread to the neighboring lands. The general slope of the land in the area allows flood flows to move down slope to neighboring districts if the cross levees separating such districts do not provide sufficient protection. For example, when RD 2064 is flooded, it is difficult to avoid flooding in RD 2075 as that district is down slope from RD 2064. Similarly, if RD 2089 floods, those waters will flow down slope into RD 2 and RD 1 on Union Island .

As stated above, when completed in the 1960s, the levee system was purportedly designed to convey 52,000 cfs. Therefore, the first objective of this Study is to evaluate ways in which the existing levees could be improved to minimize the risk of levee failure when the flow at Vernalis is 52,000 cfs or less.

## **F. Erosion control**

Erosion is another concern that potentially may compromise the integrity of existing levees. There are several places along the San Joaquin River where the riverbank is close to the levee and the bank must be armored so that the river does not erode the levee. The bends in the river also may require armoring in locations where erosion continues toward a levee. Furthermore, bank protection must be sufficiently extensive to prevent the river from changing course. As a waterway changes course, the places where erosion occurs also change, and the existing bank protection may no longer be effective in preventing the erosion.

## **G. Channel maintenance**

An average of about 250,000 cubic yards per year of sediment is carried into the South Delta by the San Joaquin River (per the Comprehensive Plan and USGS information). The river has deposited anywhere from four to eight feet of sediment in many miles of South Delta channels [*Effects of the CVP Upon the Southern Delta Water Supply Sacramento-San Joaquin River Delta, California June 1980 pages 149-154*]. These deposits increase the water stage during floods. Local reclamation districts generally do not have authority, permission, or the capability to remove or control this deposition of sediments. Consequently, further evaluation is needed to determine the funding and implementation of measures to remove existing deposits that could significantly restrict flood flow, and to maintain the appropriate elevation for the bottom of the channel.

## **H. The bottleneck in the system**

The existing South Delta flood control system includes certain limitations that prevent the system from operating at optimal capacity. Preliminarily, there is a "bottle neck" restricting flows in the San Joaquin River system in the stretch from the mouth of the Stanislaus River to the head of Paradise Cut. In this area the entire flow must be carried in a single channel until it starts to divide into other channels. The levees and the channel in this reach appear to require further improvements to safely convey 52,000 cfs.



**San Joaquin River 1997 Flood**

## **Section 2.0 - Level of Detail of the Study leading to this Conceptual Plan**

As previously stated in the introduction, the intent of this Study which led to this conceptual plan was not to create an engineering document but to provide an information base of maps and photographs of levee problems and issues identified by the Reclamation Districts within the South Delta. The information was gathered by viewing all of the District levees and documenting areas of concern identified by the various reclamation district representatives. The objective was to get a comprehensive overview of the districts and to understand the magnitude and nature of their problems and issues. Further evaluation, analysis, modeling and engineering will be necessary to confirm the scope, extent, and location of potential facility improvements.

Moreover, information pertaining to the potential need for dredging activities within the San Joaquin River basin is based upon certain assumptions that have not yet been field-tested. The purpose of the information herein is to show that the generally accepted assumptions regarding the amount of necessary dredging in the area have been significantly overstated. Based on preliminary estimates, we anticipate that less than 10 million cubic yards of dredge materials will need to be removed from the South Delta channels. This estimate is based upon a simple but conservative formula which calculates the volume by multiplying six (6) feet of depth (the average depth of material to be removed) by the surface area of water shown in the accompanying photographs. The preliminary estimates suggest that such a dredging program would entail the removal of less material than is removed in other ongoing Sacramento-San Joaquin Bay Delta programs, including the periodic maintenance dredging of the Stockton Deep Water Ship Channel by the U. S. Army Corps of Engineers.

### **Disclaimer**

This Study represents a preliminary attempt to compile information regarding the status of the South Delta flood control system and to identify the need for focused engineering work and funding in order to reduce damage in the event of future floods. The reader should not rely on the specific numbers set forth herein.

## **Section 3.0 - Analysis of Flood Flows from the Mouth of the Stanislaus River to the Central Delta**

There are sixteen reclamation districts within the South Delta Water Agency boundaries. SDWA, in consultation with those districts, reviewed the current condition of the existing flood control system and identified the need for further improvements in the system as more specifically set forth below. An effective flood control system should address the following considerations:

- 1) The San Joaquin River levees from Vernalis to Grant Line Canal and Victoria Canal must safely convey 52,000 cfs.

The San Joaquin River levees from Vernalis to Grant Line Canal and Victoria Canal were purportedly designed to safely convey a 52,000 cfs Vernalis flow while maintaining a three-foot freeboard. In some locations, the levee design appears to be substandard even though the levee height appears adequate. Recent flood events indicate that these levees have been unable to withstand the river stage that occurs with a 52,000 cfs flow at Vernalis. There have been levee failures at less than 52,000 cfs (see California Office of Emergency Services records).

A future levee improvement plan would require enhancement of levee cross sections and foundations, erosion control, sediment control and other physical improvements necessary to achieve the originally intended level of protection.

- 2) The levees and capacity of the Paradise Cut bypass should convey more flood flows without an increase in flood stage in and downstream of the bypass.

Paradise Cut is a flood control bypass channel connecting the San Joaquin River and Old River. This channel is designed to divert excess waters from the San Joaquin River during flood events, thereby reducing downstream flood levels on the San Joaquin River. Under current conditions, levee failure along the Stewart Tract (which borders Paradise Cut to the North East) during flood events results in a flooding of the entire Stewart Tract, causing it to function as an off-stream flood storage area.

As part of a separate project, Reclamation District 2062 and River Islands are currently seeking approval for the set back of the existing levee along Paradise Cut by 300 feet and more. As part of this effort, the River Islands Project is proposing to remove obstructions, reslope the Paradise Cut floodway, and provide other measures which will induce more flood water to flow through Paradise Cut to the Salmon Slough and Grant Line Canal system without increasing flood stages in Paradise Cut.

Any efforts to address flood capacity in the San Joaquin and Old River systems should include a study to evaluate the need for dredging as part of the overall plan to increase the flow capacity of channels connecting Old River and Grant Line Canal.

- 3) Dredging of the South Delta channels to improve flood flow capacity.

The San Joaquin River is estimated to carry an annual average of 250,000 yards of sediment into the South Delta. This sediment then tends to settle out in the tidal channels of the Delta. Many miles of South Delta channels have had as much as an eight-foot depth of sediment deposited in the last few decades. In addition to the dredging which may be done as a separate effort pursuant to the CalFed South Delta Improvement Program, a future flood control proposal should evaluate the quantity of dredge material that should be removed. Preliminary information suggests that dredging could remove an average of about six feet of sediment. The sediment that is removed could then be used to strengthen levees.

There is uncertainty as to what entity or entities may have the authority or obligation to dredge South Delta channels in order to maintain flood flow capacity. Reclamation districts within the South Delta are not generally authorized to conduct such work and they have insufficient funding available for the costs associated with sediment control and removal. The funding and responsibility for dredging activities will need to be further evaluated.

- 4) Maintenance dredging to maintain flood flow capacity.

After the initial dredging is conducted, sedimentation patterns experienced in the South Delta channels suggest that a depth maintenance program may be necessary such as the types of programs conducted in

commercial ship channels. If properly implemented, it is anticipated that the market for sediment will offset the costs associated with the removal of this material, such that a depth maintenance program could be conducted at no continuing cost to taxpayers after permits, access, and other necessary authorizations are provided.

5) River bank protection.

Based on past experience, channels within the South Delta require riverbank protection to (1) protect levees, (2) stop the erosion and loss of riverside berms (with the corresponding loss of their habitat), and (3) stabilize the river configuration so that the location of erosion points does not shift and then require new bank protection.

6) Reduce peak flows during a flood event.

Snowmelt floods have not exceeded 52,000 cfs at Vernalis in the last 55 years. However, winter rain floods have exceeded this flow several times for brief but damaging peak flows, most recently in 1997. This sixth consideration for a future plan would be to establish measures that would prevent these peak flows. This can be done in two ways as discussed further below: (1) restore the natural overflow of high river stages upstream of Vernalis onto dedicated wetlands and (2) build and operate new storage in the Upper San Joaquin watershed to maximize the capture of floodwaters.

If Vernalis flows are permitted to exceed 52,000 cfs, as they did in 1997, the levees will not convey those flows without failures even after remediation of any original design inadequacies and restoration of channel capacity. The authors of this study initially considered measures that would result in controlled flooding of land north of Vernalis when flows exceed 52,000 cfs while avoiding levee breaks. However, such measures likely would reduce the incentive of upstream dam operators to minimize peak flows during winter floods. Consequently, this might result in larger and more frequent flooding. In recent years the operators of the major dams on the San Joaquin River and its tributaries have voluntarily coordinated their reservoir releases during floods to minimize peak flows at Vernalis. However, those operators' interest in minimizing Vernalis flood flows might decrease if they knew that controlled downstream overflows were available during peak flows. Furthermore, those operators are under great pressure

to maximize water yield as water supplies become increasingly inadequate. More yield can result from devoting less storage space for flood control in existing dams.

Furthermore, new reservoir capacity, such as that proposed above Friant Dam, potentially could be operated to maximize storage of flood waters and thereby also maximize multi-year water yield. However, this must be balanced against the pressure to use this capacity instead to increase water releases in dry years. In view of these considerations and the fact that the reclamation districts on the east side of the San Joaquin River and north of Vernalis do not wish to be viewed as ever volunteering to be flooded, the idea of controlled flooding during peak flows was discarded.



**San Joaquin River at Mossdale - January 1997**

**Insert  
11 x 17**

**Map of 1997 Flood Areas - (Siegfried / USGS map)**





**Junction of Old River and Paradise Cut  
at the Downstream End of Paradise Cut**

## **Potential Flood Control Enhancement Measures Subject to Further Evaluation**

1) Approximately 130 miles of levee segments need to be evaluated to determine what improvements are needed. Of this amount, our preliminary estimates indicate about 25 miles may have inadequate levee cross-sections and/or poor foundations or other weaknesses. There may be approximately the same mileage needing benches on the landside or other measures to prevent boils or lack of stability of steep levee sides.

2) Further evaluation is necessary to determine the extent of erosion control measures. Preliminary estimates suggest that approximately 30 miles of bank protection may be needed to prevent erosion of levees and to stabilize the river flow path so that habitat on berms does not continue to be lost, and so that shifts in the locations of erosion do not later require new bank protection.

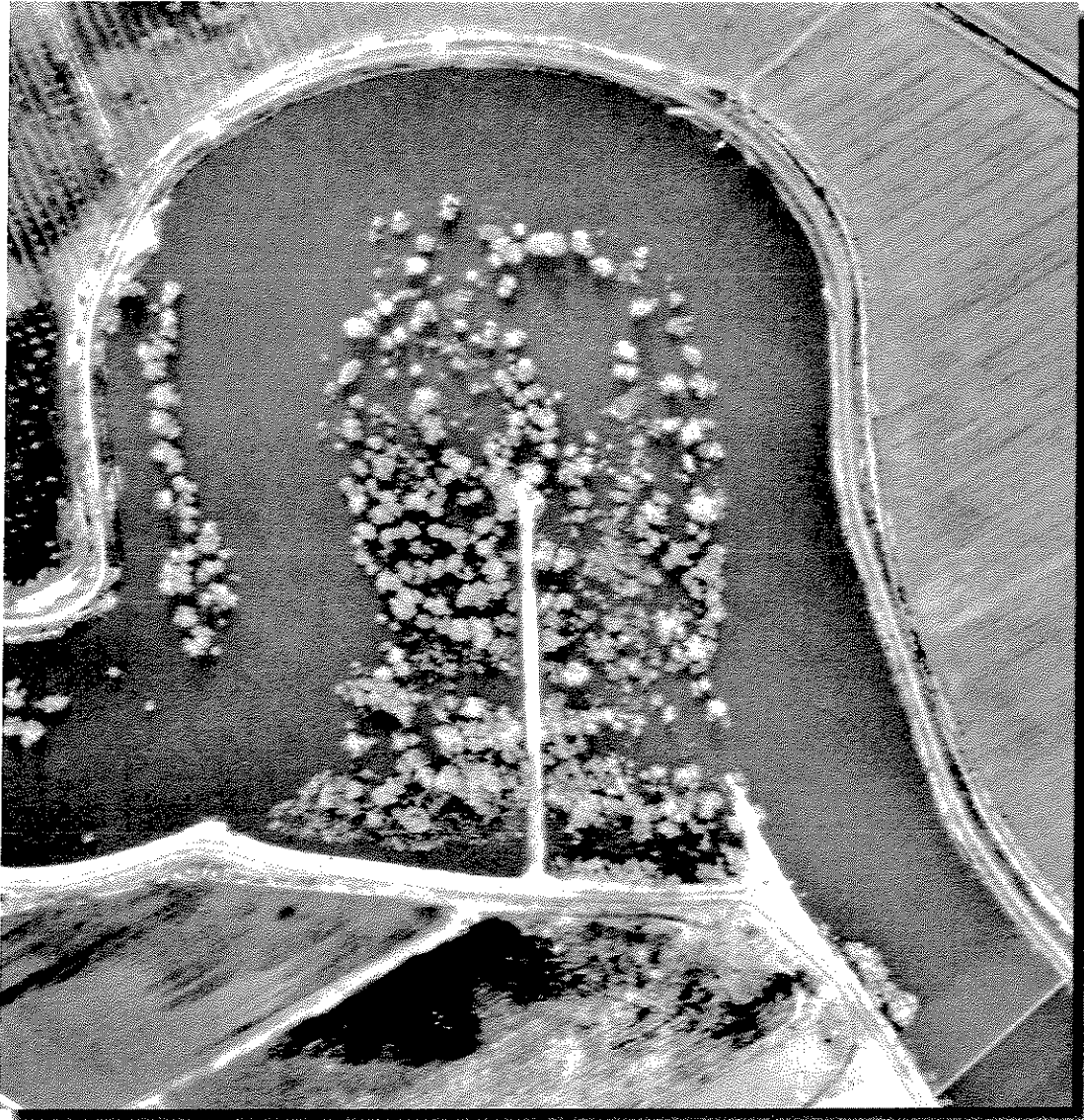
3) The Proposed River Islands Project includes measures to increase the flow capacity of Paradise Cut consistent with the above. The River Islands Project preliminarily estimates that about three million cubic yards of material would be excavated to enhance flow capacity.

4) Preliminary estimates indicate that if all shallow channels were deepened by an average of six feet from bank to bank, approximately nine million yards of material would need to be dredged. However, wide channels do not all need to have the entire width deepened and some channels may already have sufficient depth thereby requiring less dredging. Furthermore, a modest portion of this dredging is expected to be conducted for other reasons under the CALFED South Delta Improvement Program. Nonetheless, the amounts of dredging that may be required will be substantially less than the dredging conducted in the San Francisco Bay and the Delta Ship Channels.

5) A future flood control plan would need to include measures to reduce peak flows during winter floods to not more than 52,000 cfs at Vernalis. Two measures have been identified that may accomplish such objectives.

a) Reducing peak Vernalis flows by overflowing wetlands

# ECO RESTORATION OPPORTUNITIES



## SOUTH DELTA FLOOD CONVEYANCE PLAN

ALEX HILDEBRAND  
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27 July 2005

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**Mossdale Oxbow – 1997 San Joaquin River in Flood**

## Introduction

In January 1997, major storms throughout California resulted in record flows on many rivers and caused considerable damage. On the San Joaquin River, levees failed in 27 locations causing significant damage throughout the basin. After the 1997 flood events on the Sacramento and San Joaquin River systems, the United States Army Corps of Engineers ("Corps") and the California State Reclamation Board ("Reclamation Board") undertook to develop the *Sacramento and San Joaquin River Basins California Comprehensive Study* ("Comprehensive Plan") for flood conveyance in the Central Valley of California (the most recent draft is dated December 2003). As part of the development of this Comprehensive Plan, the Corps and the Reclamation Board encouraged local reclamation districts to prepare individual flood control impact proposals, which were anticipated to eventually become part of the larger Comprehensive Plan.

In 2003, the South Delta Water Agency ("SDWA") and Califia LLC dba River Islands at Lathrop ("River Islands") entered into an Agreement for Joint Action. One of the provisions of that MOU committed the parties to assist the local reclamation districts within the boundaries of the SDWA in developing an area-wide flood control impact proposal. The "SOUTH DELTA FLOOD CONVEYANCE PLAN" was the result of that request and the first step in that process to bring such a program to fruition.

Subsequent to the Conveyance Plan completion and presentation to the California State Reclamation Board, and in conjunction with the United States Army Corps of Engineers, the California Department of Water Resources and CalFed, the authors were asked to expand on the possibility of eco restoration as an integral component of the Conveyance Plan. Following are the thoughts and ideas we think could arise from the Plan and that would have the support of the myriad of agencies involved.

After lengthy discussions with various Agencies and advice from biologists familiar with the San Joaquin River system we see the environmental benefits of the plan falling roughly into three categories;

- 1) benefits that result from features of the plan which benefit both the environment and flood control and are inherent in the Plan, and
- 2) Eco restoration benefits to the San Joaquin River system in general that can readily be achieved by expanding the plan to further benefit the environment without jeopardizing the flood control objectives of the Plan.
- 3) Specific restoration improvement projects that are directly included in the portion of the Plan relating to Paradise Cut, or which are part of the associated Development Plan for reclamation District 2062.

## **Section 1 - Environmental Benefits of the South Delta Flood Conveyance Plan**

This section discusses the environmental benefits and protections against environmental degradation that are inherent in the Plan. The environment and the flood flows in and adjacent to South Delta channels have been substantially affected by the irreversible and substantial alteration of the stream flow regime by the Central Valley Water Project (CVP), the CVP-IA, the Hetch Hetchy diversions, developments in and upstream of the flood plain, upstream water sales, dams, etc.

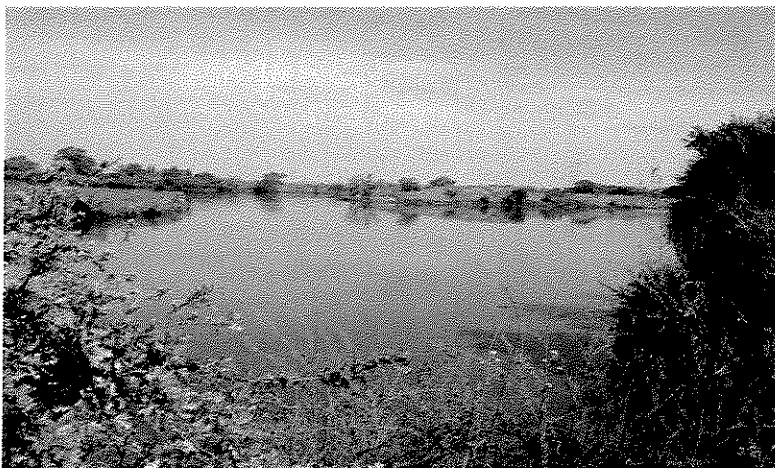
- I. The San Joaquin River conveys on average about 250,000 cubic yards of sediment per year into the South Delta (USGS and COE consultant estimates). This sediment deposits in the channel wherever and whenever flow velocities are low and particularly in the tidal channels north of Vernalis. The inflow of the river to the South Delta has been greatly reduced. This has resulted in deposition of about eight feet of depth of sediment throughout substantial portions of South Delta channels. There has been no substantial removal of sediments since the completion of the Dam construction.

The consequences of this deposition and the greatly reduced summer flow are that:

- The flood carrying capacity of the channel is greatly reduced.
- Brush grows on sediment bars during the long periods of low flows and this captures more sediment and grows more brush.
- The brush impedes flow and increases velocity against the river banks and this increases bank erosion during even modestly high flows. This erosion causes more sediment to drop into the channels so that the channels continue to get wider and shallower. During the prolonged low flows the water is then too shallow and too hot for healthy fish habitat.

- The high berms between the channels and the levees have supported groves of oaks and cottonwoods and other terrestrial habitat and some riverine shade for fish.
- This habitat on high berms can no longer be replaced with the new flow regime, so substantial terrestrial habitat has been and continues to be lost so long as the depleted river is allowed to meander.
- When the river meanders the location of bank erosion sites shifts. Rocked bank protection that was previously located to protect levees is no longer in the right place. New bank protection is then needed at other locations.
- Over time without the plan there would be a wide shallow channel from right bank to left bank levee with little or no high berm habitat. Much more bank protection would therefore be needed to protect levees.

Most levees were built by the COE with adequate height to carry “design flood” levels. Failure is generally not from overtopping but internal and is often the result of seepage which create undermining boils causing eventual collapse. When levees fail there is substantial loss of wildlife which are driven from their riparian habitat with no place to go.



**Salmon Slough Islands**



In summary of intrinsic environmental benefits, the South Delta plan would restore more adequate depth of channel water for both flow conveyance and fish. Brush will not grow in the channels where it is continuously inundated. By providing bank protection to stop meander the Plan will reduce the ultimate need for bank protection to avoid levee erosion. The Plan will also stop the on-going loss of oaks and cottonwoods on high berms that are being eroded away and which are not replaced with other berms due to the irreversibly altered flow regime.



**Mossdale Oxbow – 30 Acre Riparian Brush Rabbit Preserve**



## **Section 2 – South Delta Flood Conveyance Plan and Eco Restoration Opportunities**

### **Wildlife, Plant, and Sensitive Community Restoration**

The CALFED Bay-Delta Program Multi-Species Conservation Strategy (July 2000) was reviewed to determine special-status wildlife and plant species and communities that are known to exist, could potentially exist, or could be introduced within the South Delta Flood Conveyance Plan area.



**Riparian Brush Rabbit**

. A list of species and communities is presented in Table 1. Each of these 22 species is listed as “may be affected” by CALFED actions (July 2000).

Table 1. Species that exist in the area or could be reintroduced into South Delta Flood Conveyance Plan area.

	CALFED species goals <sup>1</sup>	Fed. status	State status	Habitat identified in WLSP EIR?
<b>Mammals</b>				
Riparian brush rabbit	r	E	CE	yes-marginal
San Joaquin Valley woodrat	r	E	CSC	yes-marginal
<b>Birds</b>				
Cooper's hawk	m	--	CSC	yes
Little willow flycatcher	r	--	--	no
Swainson's hawk <sup>2</sup>	r	--	CE	yes
Tricolored blackbird	m	--	CSC	yes-marginal
Western yellow-billed cuckoo	r	--	CE	yes
White-tailed kite	m	--	FP	yes
<b>Fish</b>				
Delta smelt	R	T	CT	yes
Central Valley steelhead	R	T	--	not treated
Central Valley spring-run Chinook salmon	R	T	CT	not treated
Sacramento splittail	R	T	CSC	yes
<b>Amphibians/ reptiles</b>				
Giant garter snake	r	T	CT	yes
Western pond turtle <sup>2</sup>	m	--	CSC	yes
<b>Invertebrates/Insects</b>				
Valley elderberry longhorn beetle <sup>2</sup>	R	T	--	yes
<b>Plants</b>				
Antioch Dunes evening-primrose	R	E	CE	no
Delta coyote-thistle	r	--	CE	yes-marginal
Delta tule pea	r	--	--	yes-marginal
Mason's lilaeopsis	R	--	R	yes-marginal
Rose-mallow (California hibiscus)	m	--	--	yes-marginal
Sanford's arrowhead	m	--	--	no
Slough thistle	m	--	--	yes-marginal
<b>Communities</b>				
Great Valley valley oak riparian forest	n/a	n/a	n/a	yes
Shaded riverine aquatic	n/a	n/a	n/a	no
Willow scrub/ willow riparian	n/a	n/a	n/a	no

1. R = Recover species populations within the MSCS focus area; r = Contribute to recovery; m = maintain; ensure CALFED actions will be offset by other beneficial actions.

2. Known to occur in the Plan areas.

Table 2. Wildlife and plant species evaluated in West Lathrop Specific Plan EIR (1995).

LISTED SPECIES	COMMON NAME	STATE STATUS	FEDERAL STATUS	POTENTIAL HABITAT PRESENT?	SEEN?	FOCUSED SURVEYS CONDUCTED
<b>Invertebrates</b>						
<i>Desmocerius californicus dimorphus</i>	Valley elderberry longhorn beetle	--	T	Yes	No	Yes
<b>Fish</b>						
<i>Hypomesus transpacificus</i>	Delta smelt	E	T	Yes	No	Yes
<b>Reptiles</b>						
<i>Thamnophis gigas</i>	Giant garter snake	T	E	Yes	No	Yes
<b>Birds</b>						
<i>Branta canadensis leucopareia</i>	Aleutian Canada goose	--	T	Marginal	No	--
<i>Buteo swainsoni</i>	Swainson's hawk	T	C3C	Yes	Yes	Yes
<i>Coccyzus americanus occidentalis</i>	Western yellow-billed cuckoo	E	--	Marginal	No	Yes
<i>Laterallus jamaicensis coturniculus</i>	California black rail	T	C1'	Marginal	No	Yes
<b>Mammals</b>						
<i>Vulpes macrotis nutica</i>	San Joaquin kit fox	T	E	No	No	Yes
<b>Plants</b>						
<i>Eryngium racemosum</i>	Delta button celery	E	C1	Marginal	No	Yes
<i>Lilaeopsis masonii</i>	Mason's lilaeopsis	R	C2	Marginal	No	Yes
<b>CANDIDATE &amp; PROPOSED SPECIES &amp; SPECIES OF SPECIAL CONCERN</b>						
<b>Invertebrates</b>						
<i>Lytta moesta</i>	Moestan blister beetle	--	C2	Yes	No	--
<b>Fish</b>						
<i>Pogonichthys macrolepidotus</i>	Sacramento splittail	CSC	C2	Yes	No	Yes
<i>Splirinchus thaleichthys</i>	Longfin smelt	--	2R	Yes	No	Yes
<b>Amphibians</b>						
<i>Ambystoma californiense</i>	California tiger salamander	CSC	C2	No	No	--
<i>Rana aurora draytonii</i>	California red-legged frog	CSC	PE	Marginal	No	--
<i>Scaphiopus hammondi hammondi</i>	Western spadefoot toad	CSC	2R	Yes	No	--
<b>Reptiles</b>						
<i>Cnemidophorus marmorata marmorata</i>	Northwestern pond turtle	CSC	2LP	Yes	Yes	--
<i>Cnemidophorus marmorata pallida</i>	Southwestern pond turtle	CSC	1LP	Yes	Yes	--
<b>Birds</b>						
<i>Accipiter cooperi</i>	Cooper's hawk	CSC (nesting)	--	Yes (foraging)	Yes	--
<i>Accipiter striatus</i>	Sharp-shinned hawk	CSC (nesting)	--	Yes (foraging)	Yes	--
<i>Agelaius tricolor</i>	Tri-colored blackbird	CSC	C2	Marginal	No	--
<i>Ardea herodias</i>	Great blue heron	* (rookery)	--	Yes	Yes	--

<i>Athene cucularia</i>	Burrowing owl	CSC (burrow sites)	--	Yes	No	--
<i>Casmerodius albus</i>	Great egret	* (rookery)	--	Yes	Yes	--
<i>Charadrius montanus</i>	Mountain plover	CSC	C2	Marginal	No	--
<i>Circus cyaneus</i>	Northern harrier	CSC (nesting)	--	Yes	Yes	--
<i>Elanus caeruleus</i>	White-tailed kite	* (nesting)	--	Yes	Yes	--
<i>Lanius ludovicianus</i>	Loggerhead shrike	--	C2	Yes	Yes	--
<i>Numenius americanus</i>	Long-billed curlew	CSC	--	Yes	Yes	--
<i>Nycticorax nycticorax</i>	Black-crowned night heron	* (rookery)	--	Yes	Yes	--
<i>Phalacrocorax auratus</i>	Double-crested cormorant	CSC (nesting)	--	Yes	Yes	--
<i>Sterna caspia</i>	Caspian tern	* (nesting colony)	--	Marginal	Yes	--
<i>Sterna forsteri</i>	Forster's tern	* (nesting colony)	--	Yes	Yes	--
<b>Mammals</b>						
<i>Perognathus inornatus inornatus</i>	San Joaquin pocket mouse	CSC	--	No	No	--
<i>Plecotus townsendii townsendii</i>	Pacific western big-eared bat	CSC	C2	No	No	--
<i>Sylvilagus bachmani riparia</i>	Riparian brush rabbit	SCE	C1	Marginal	No	Yes
<i>Neotoma fuscipes riparia</i>	San Joaquin Valley woodrat	CSC	C1	Marginal	No	Yes
<b>Plants</b>						
<i>Cirsium crassicaule</i>	Slough thistle	--	C2	Marginal	No	Yes
<i>Hibiscus californicus</i>	California hibiscus	--	C2	Marginal	No	Yes
<i>Lathyrus jepsonii ssp. jepsonii</i>	Delta tulle-pea	--	C2	Marginal	No	Yes
<i>Quercus lobata</i>	Valley oak	--	--	Yes	Yes	Yes
<i>Trichocoronis wrightii</i>	Trichocoronis	--	--	No	No	Yes
<i>Tropidocarpum capparidifolium</i>	Caper-fruited tropidocarpum	--	C2	No	No	Yes
<b>Sensitive Communities</b>						
	Great Valley valley oak riparian forest	--	--	Yes	Yes	--

# 1 Status Categories

E = Endangered R = Rare

T = Threatened P = Proposed

SCE = California candidate for listing as endangered

CSC = DFG Species of Special Concern.

C1 = Category 1: Taxa for which the Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.

C2 = Category 2: Taxa for which existing information may warrant listing, but for which substantial biological information to support a proposed rule is lacking.

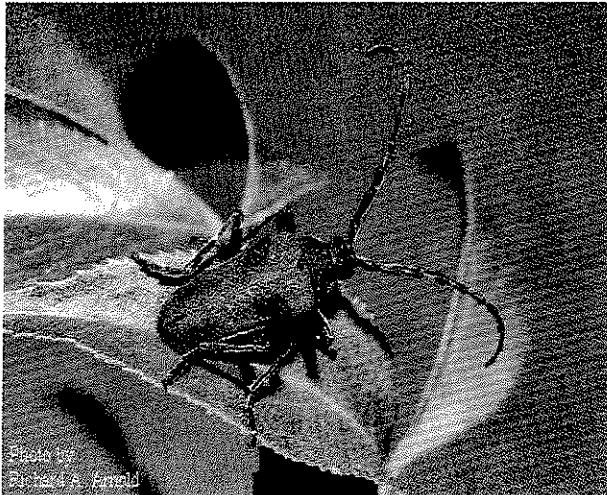
C3C = Category 3C: Taxa that are widespread or too common to list

2R = Recommended for Category 2 status

\* = DFG "Special Animal"

LP = Listing petitioned. CNPS = California Native Plant Society List 4: Plant of Limited Distribution - A Watch List Species 2 Category 1 based on CNDDB/RareFind (1993) printout. Other Dept. of Fish and Game (DFG, 1992) data lists this as a Category 2 species.

The West Lathrop Specific Plan EIR identified 18 other special-status species which could potentially occur (nest, forage, over winter, etc.) along the South San Joaquin River. Thus, there are numerous opportunities within Paradise Cut, the setbacks and back bays on the San Joaquin River and Old River and the Islands above Grant Line Canal for the introduction of special-status species as part of the larger Comprehensive Plan.

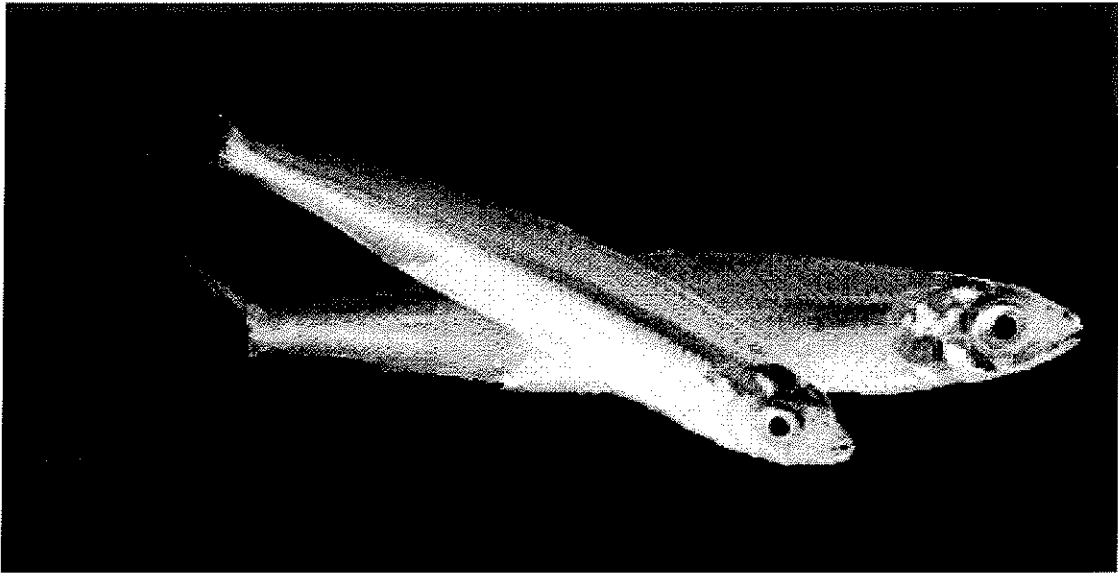


**Valley Elderberry Long Horn Beetle**



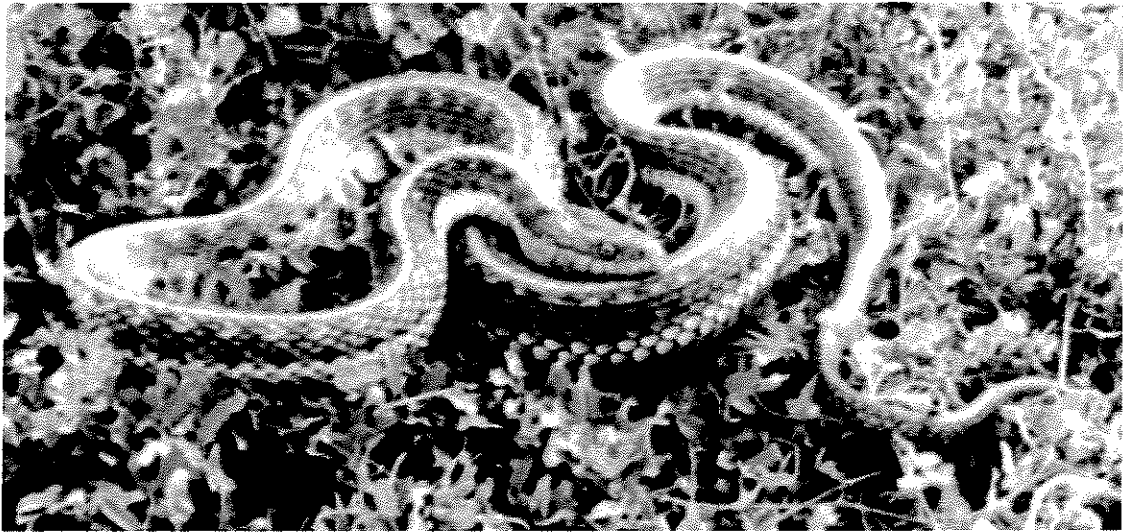
**Woodrat (DFG photo)**

With the objective of satisfying mitigation requirements it would also be possible to attempt introductions of selected wildlife species in these same geographic areas. Species such as the woodrat and/or riparian brush rabbit, or plant species such as planting elderberry shrubs for the Valley elderberry longhorn beetle would be located so as not to interfere with the ongoing flood control maintenance requirements and in cooperation with the local Reclamation Districts. Many other species would be expected to colonize the Eco Restoration area after habitat has become suitable for them.

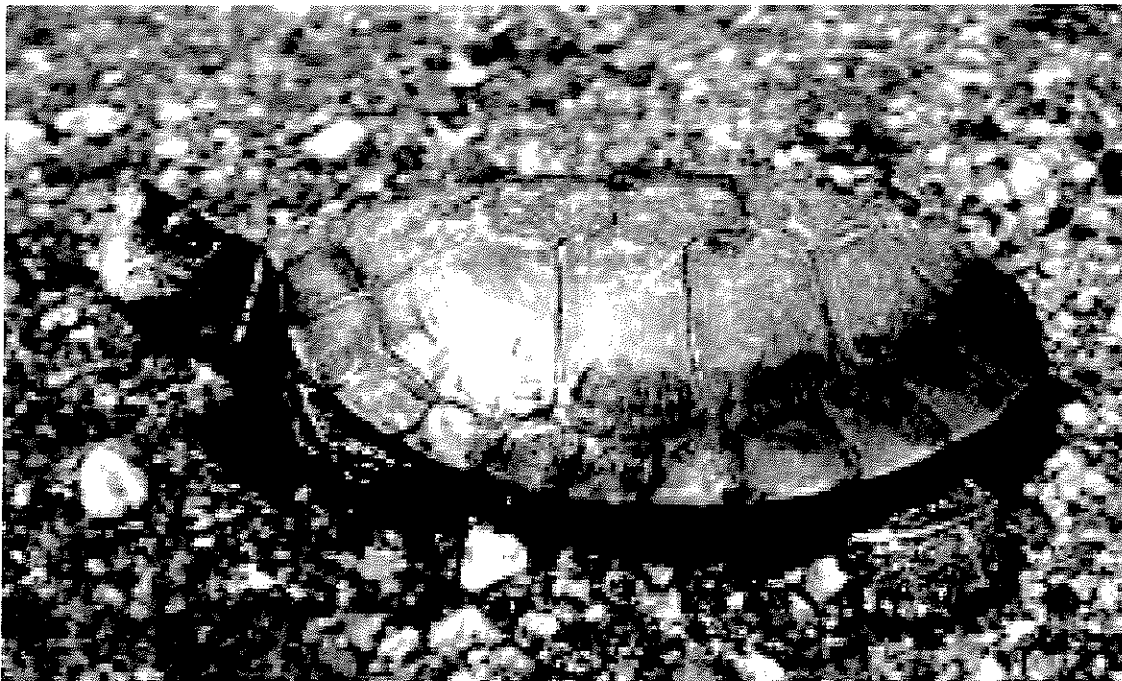


**Delta Smelt (DFG photo)**

Dredging for Flood Control and the creation of new, additional channels in the Plan area provide an opportunity to create habitat for special-status aquatic species including Delta smelt, Sacramento splittail, giant garter snake, western pond turtle, and Sanford's arrowhead. Existing habitat for these species can also be enhanced.



**Giant Garter Snake (CVPCP photo)**



**Western Pond Turtle**

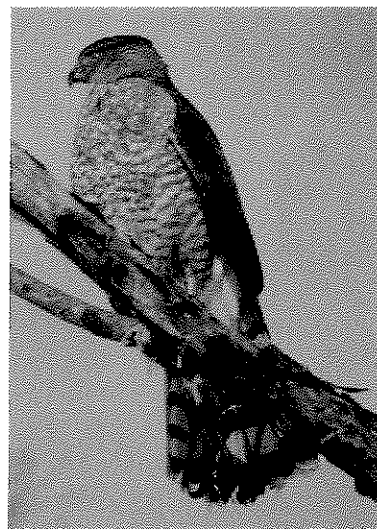
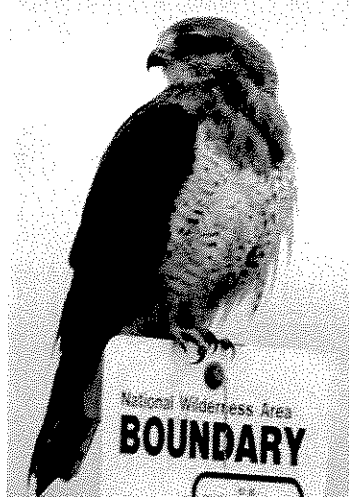
## Isolating Levee Remnants

The existing levees within the Comprehensive Plan Area are currently managed for removal of most vegetation based on US Army Corps of Engineers requirements and administrated through the local Reclamation Districts and the California State Recamation Board.. As a result, vegetation is mowed, burned, and sprayed with herbicides unless it is protected under Fish and Game Code Section 1602. Obviously Habitat restoration and levee maintenance goals are in conflict Incorporation of Levee Remnants as highlighted in the RD 2062 setback plan and outboard benches existing or left over from potential levee setbacks into the Eco Restoration Plan provides an opportunity to manage them for the benefit of wildlife and vegetation. Native Valley oaks and sycamores could be planted with an under story of native shrubs and grasses. Hundreds of elderberry shrubs could be planted to create an elderberry savanna type community. This levee and areas adjacent to it would also be available for introducing riparian brush rabbit and San Joaquin Valley Woodrat.

The planting of hundreds of trees associated with Great Valley oak riparian forest would benefit special-status species as well as scores of other species. For example, the lack of willow thickets in the Valley has resulting in limiting nesting opportunities for the little willow flycatcher. The planting of willows and associated trees in the Eco Restoration unit could benefit the Little Willow Flycatcher as well as the Western Yellow-billed Cuckoo.



Photo by George Jameson



**Western yellow-billed  
Cuckoo**

**Swainson's Hawk**

**Cooper's Hawk (DFG photo)**

Planting Valley oaks, cottonwoods, and sycamore trees will provide future nesting opportunities for numerous special-status avian species noted by CALFED (July 2000) including Swainson's hawk, Cooper's hawk, and white tailed kite. Other species such as red-tailed hawk, great gray owl, and various species of bats could also benefit from the presence of additional large trees.



## **Shaded Riverine Aquatic (SRA) Habitat**

Shaded riverine aquatic (SRA) habitat is a specialized habitat type that provides cover and presumably lower water temperatures to migrating salmonids during summer months. SRA, which consists of large trees and smaller shrubs, provides shade and resting places for migrating salmonids as well as numerous other aquatic species. SRA habitat could easily be established along the west banks of the San Joaquin River in RD 2062 where existing outboard benches exist. At present these area are mostly void of tree and shrub vegetation. The establishment of SRA vegetation is expected to benefit Central Valley steelhead and Central Valley spring-run Chinook salmon, as well as Delta smelt and Sacramento splittail. A good example of this type of SRA exiting is in Paradise Cut and the Oxbow at Mossdale on the San Joaquin.



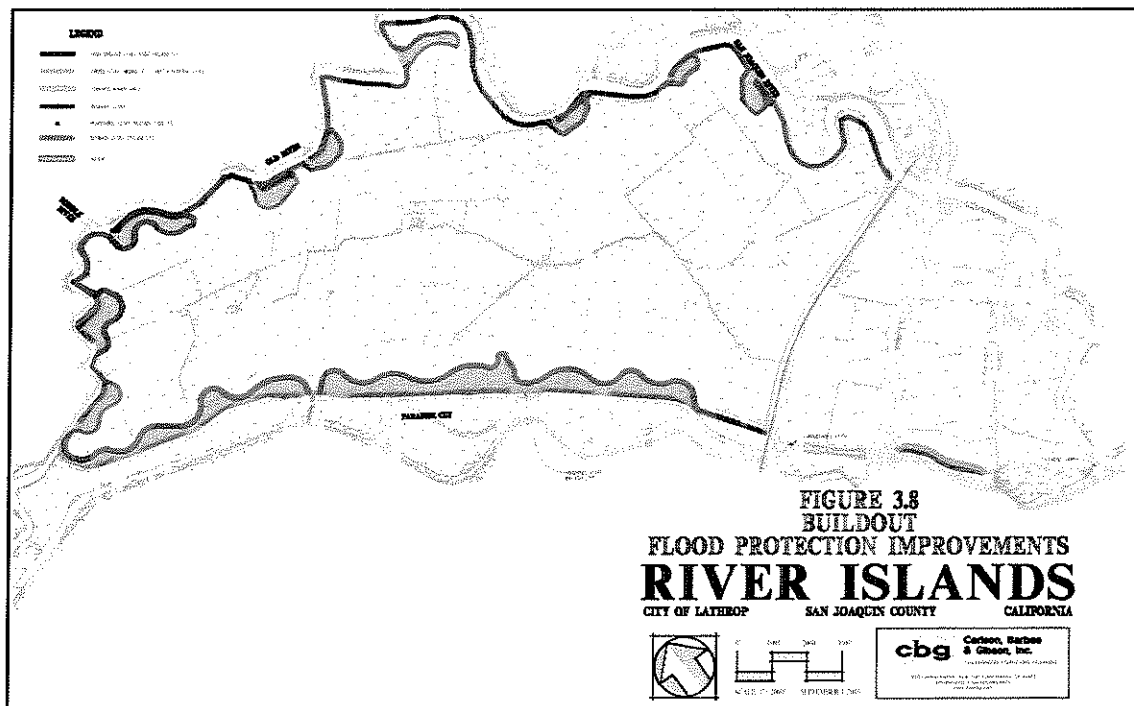
**Salmon Resting in SRA Habitat**

### **Section 3 - Paradise Cut Eco Restoration and Flood Conveyance Improvements**

## Project Description

The following is a partial listing of the projects contained within the proposed **River Islands - Paradise Cut Eco Restoration Plan SEIR 22 January 2003** and identified here as inclusive in the broader **South Delta Flood Conveyance Plan**. The overall goal of the Conveyance Plan is to redirect current high water flood flows from the San Joaquin River system through Paradise Cut as per the Cuts original design. The overall plan includes increasing the surface area within the channels connecting Paradise Cut and Old River to Grant Line Canal by approximately 300 acres. It is thereby possible to include measures that increase the flow through Paradise Cut without increasing the flood stage (i.e. flood water elevation) during flood either in or downstream of Paradise Cut. This section discusses the environmental benefits that are included in the Conveyance Plan for Paradise Cut.

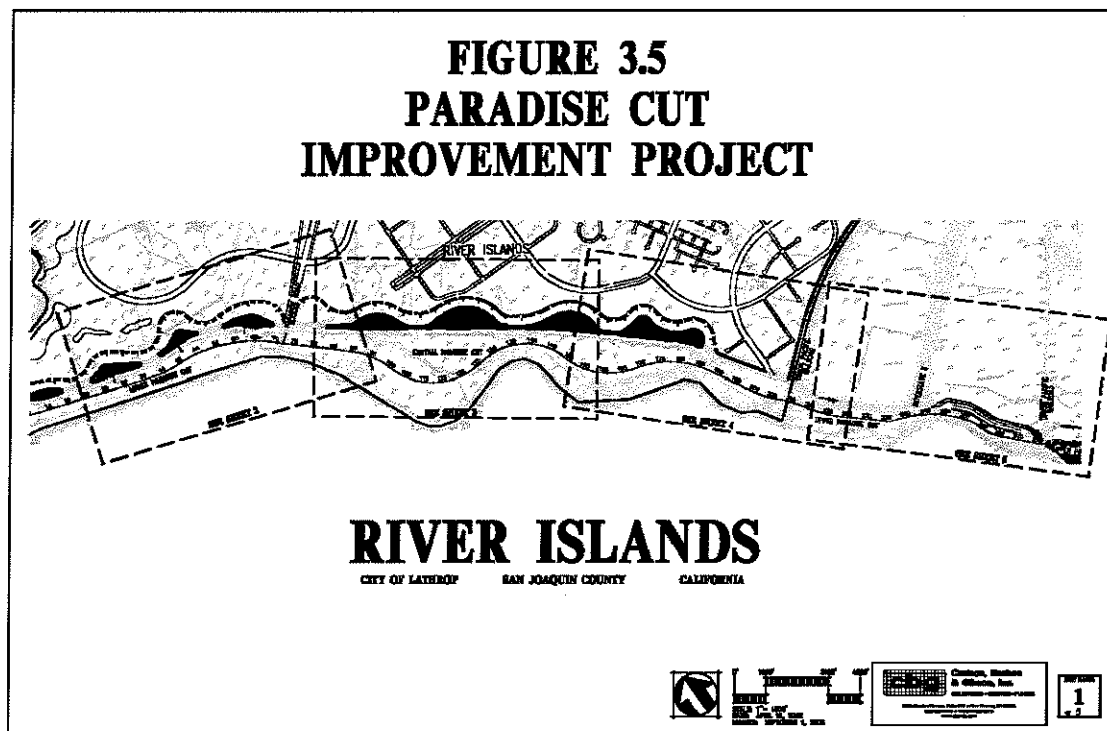
These and other benefits for the most part are included in the River Islands at Lathrop Plan for Development in Reclamation District RD 2062 and RD 2107.



River islands Flood Protection Improvements



**Southern Pacific Rail Bridge at Mossdale Flood 1997**



### **Upper Paradise Cut Improvements**

With the approval of the **River Islands** project some of these comprehensive flood improvement projects can proceed ahead of the Army Corps of Engineers

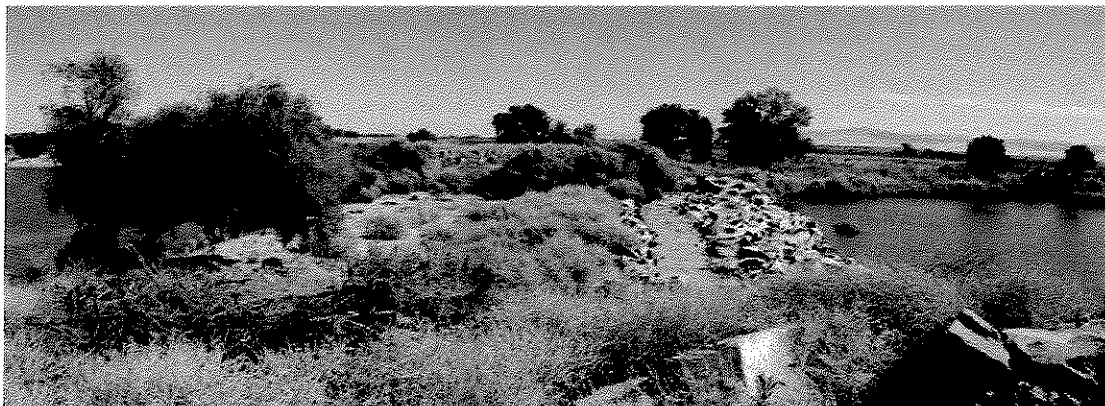
Comprehensive Plan implementation thereby bringing flood relief now as opposed to some indeterminate time in the future.

The Paradise Cut Eco Restoration Plan's partial list of projects is as follows:

**The Paradise Weir** - The Paradise Weir, which controls flood flow into Paradise Cut from the San Joaquin River, will be widened approximately 300' to the West. The Weir sill height will be extended at its current elevation allowing a larger cross section of the flood waters at a specific elevation and above to enter Paradise Cut. The improvements to the Paradise Weir will culminate in a 500' total width control flow structure upon its completion. This widening is not being done by River Islands but the activities that are being done by River Islands will not prohibit the widening in the future.

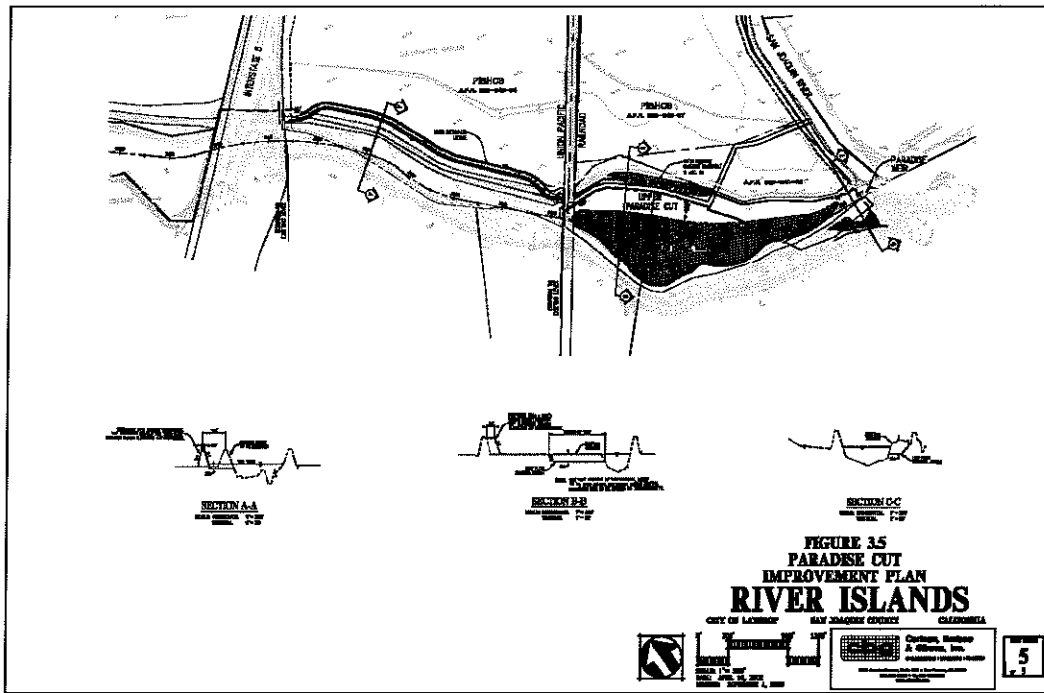


**Paradise Weir down stream**



**Paradise Weir at the Junction of the San Joaquin River looking West**

**Paradise Cut Bench Removal** - The approximately 40 acre sand bench that currently exists immediately North of the Paradise Cut Weir will be excavated and lowered 5' and removed from the Flood Channel. This will reduce the backwater affect on the existing Paradise Cut Weir allowing for increased flow during high water times. The material will be used to reinforce surrounding levees.



### Upper Paradise Cut Improvements Levee setback and Bench Removal

**South Pishos Property** – The levees surrounding the South Pishos property (RD-2107) on the west Paradise Cut side and on the south San Joaquin side will be improved. This will be done in conjunction with the removal of the bench and the utilization of the excavated materials.



**The South Pishos Property looking North from Paradise Cut Weir**

### North Pishos Property - Paradise Cut Levee Setback

The current levee, presently protecting the northern Pishos property on Paradise Cut between the Union Pacific Rail Line and Interstates I-5 and I-205 will be set back 150' and rebuilt to a 100 year standard. This will increase the area of Paradise Cut at that location by approximately 10 acres thereby reducing the backwater effect at the Paradise

Weir in its current configuration, allowing more flood water to pass down Paradise Cut. The Levee Remnants will be restored to riparian vegetation for the benefit of wild life.



**North Pishos Property Levee to be set back to the East**

**RD-2107 Levee Improvements - I-5 North to old SP Right Away**

In this stretch of Paradise Cut, between I-5/I-205 and the former Southern Pacific Rail right of way will require levee improvements in both height and width to meet 100 year event standards. These improvements are not being proposed by the River Islands at Lathrop project.



**I-205 at Paradise Cut**





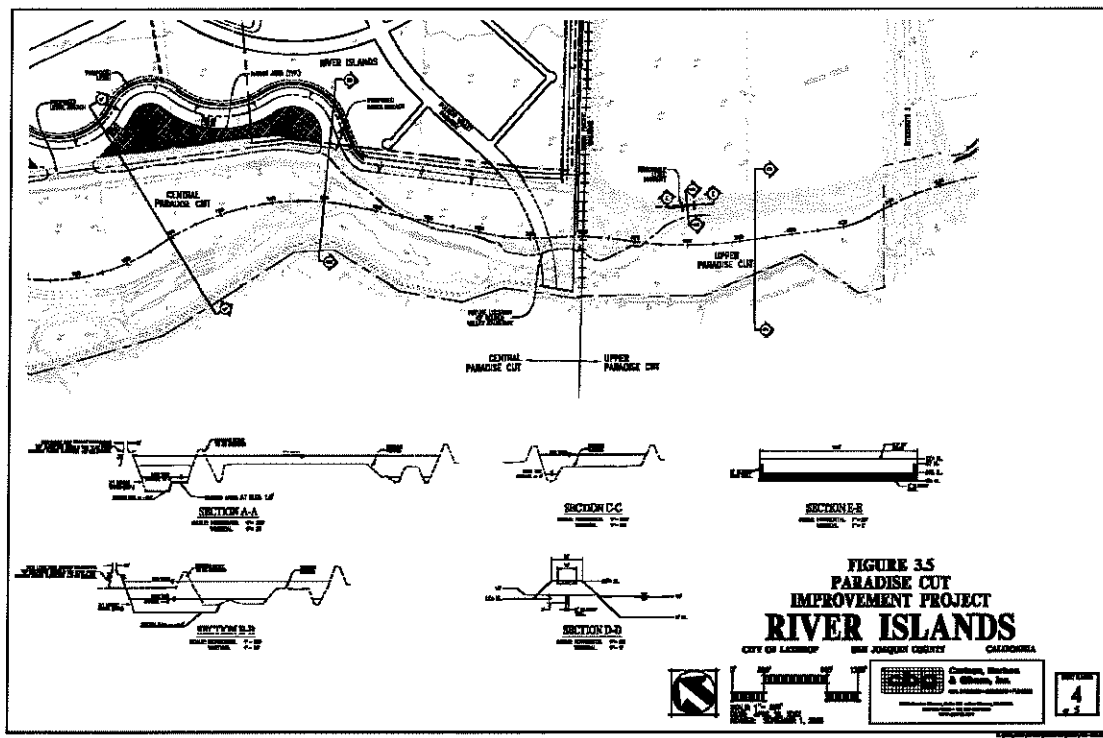
**Old Southern Pacific Railway Bridge Tressel**



**1997 San Joaquin River at Flood Stage**

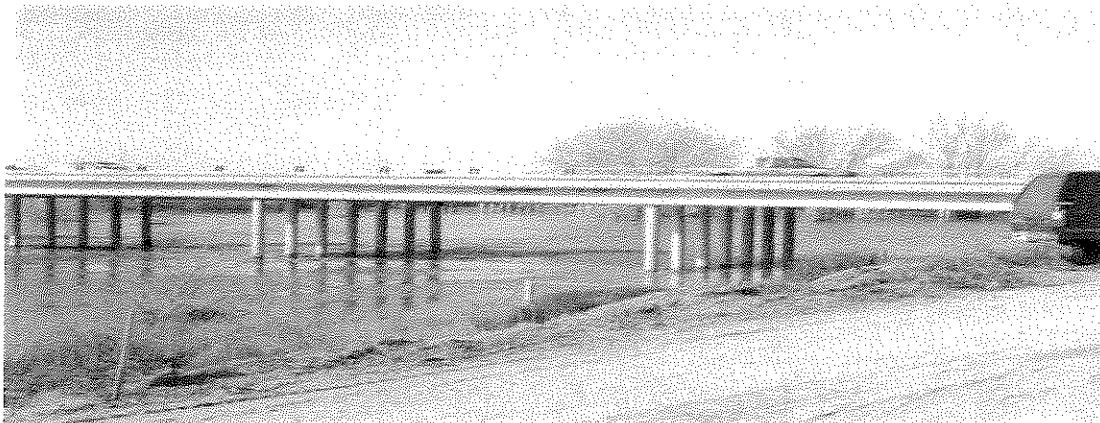
**Paradise Cut Levee Setback**

The Paradise Cut Levee between the SP right of way and the North end of the Stewart Tract at its junction with Old River, will be set back as much as 300' and will provide a minimum of 100 year flood protection. The extra width of the levees will allow for land water interface planting resulting in the creation of "Shaded Riverine Aquatic habitat (SRA)". The existing levees will remain in place (levee remnants) will be breached at the Northern and Southern ends for access to the canal created by the levee setback. The remaining levee remnants will be planted and provide high ground refugia for the endangered Riparian Brush Rabbit and associated wild life. The new levees will have an extra wide top cross-section. The canal will vary up to 300 feet wide and up to 15 feet deep with 3:1 side slopes. All excavated material from the canal will be utilized to construct the high ground "Super Levees" adjacent.



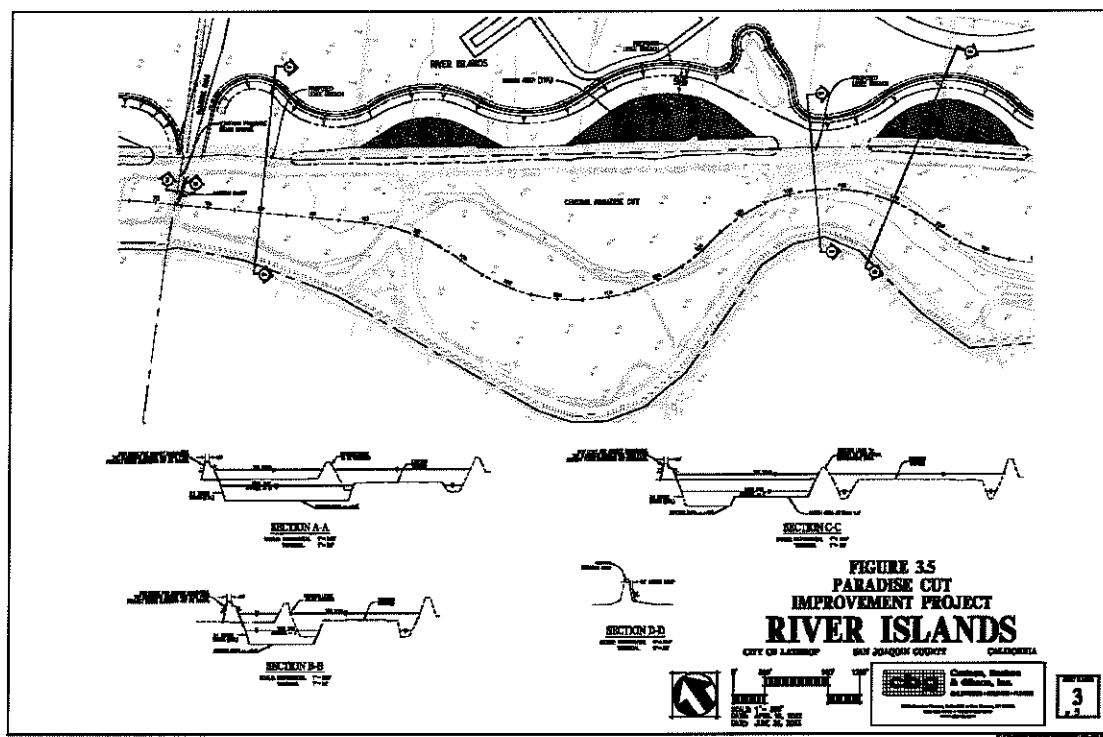
**Paradise Cut Back Bay set backs**



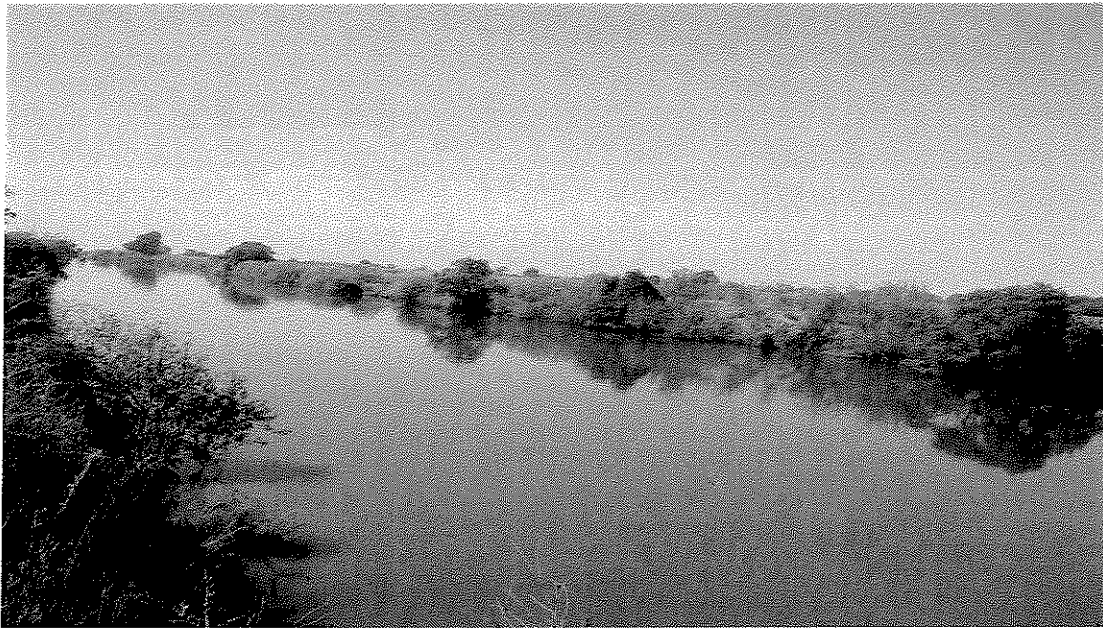


### I-205 at Paradise Cut during the 1997 Flood Old River Connection Canal

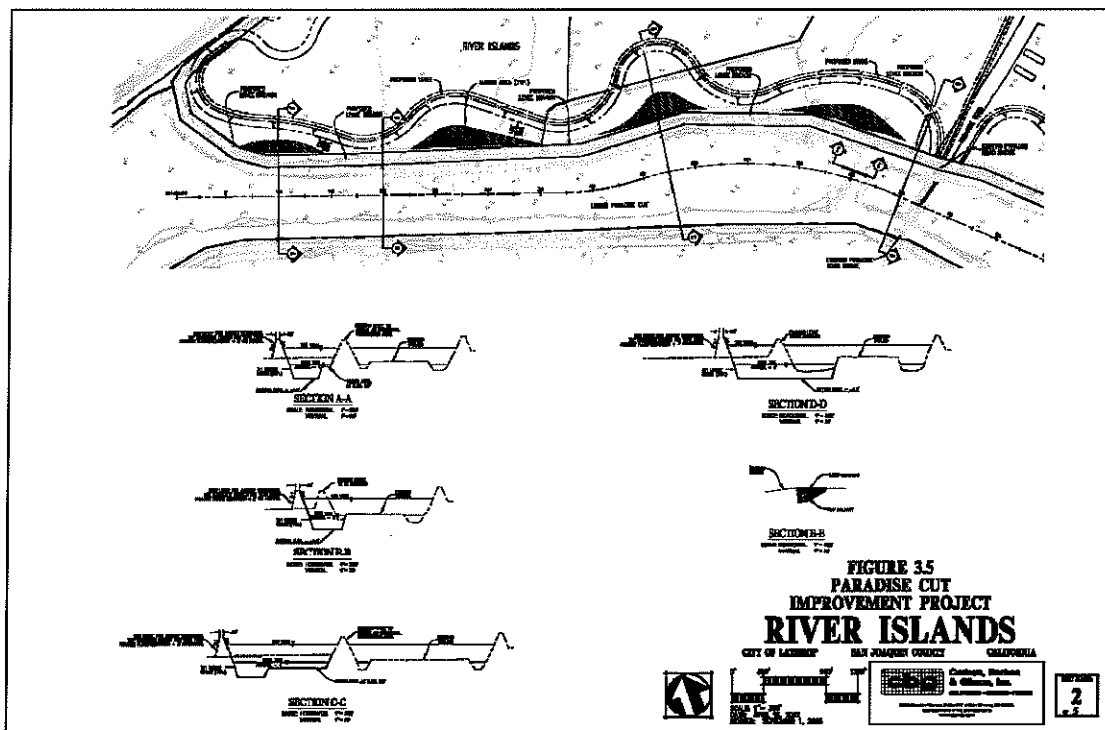
The canal setback will be connected to Old River with an extension of the Paradise Canal east across the northern tip of Stewart Island, widening and deepening an existing cut. This will allow boat passage into the Old River system with access to the entire south delta recreational resources including Grant Line Canal and Discovery Bay.



### Upper Paradise Cut Improvements above Twin Bridges



Grant line at Salmon Slough



Upper Paradise Cut Improvements below Twin Bridges

**Old River ECO Island** - With the cross boating canal in place, the northern tip of the Stewart will truly become an ecological Island separate from the main land. This presents ecological habitat management possibilities in the form of increased seasonal wet lands as well as Swainson Hawk nesting habitat as originally agreed to by the City of Lathrop in their 2081 Agreement with State Fish and Game.



### **Salmon Slough Area**

#### **Salmon Slough Dredging**

To improve flood flows, the Salmon Slough area will also need to be dredged. Although not a river Islands project, the dredge spoils can be used for local levee improvements or high ground habitat management projects such as Eco Islands within the area. If improved for flooding, Salmon Slough will also allow the passage of larger boats with greater recreational access to the area.

## **Section 4 – Appendix - Appropriation Requests**

### **Fiscal Year 2006 Appropriation Request**

**Representative Dennis Cardoza (CA-18)**

Project Name: Lower San Joaquin River sub area- Sacramento and San Joaquin River Basins California, Comprehensive Study

**Overall Priority for Requesting Agency:** Immediate Implementation for an ongoing US Army Corps of Engineers project working to completion.

House Appropriations Subcommittee: Energy and Water Development  
Funding Program (i.e. COPS, Federal Highway Administration): - US Army Corps of Engineers

**Project priority within this Subcommittee:** Top

Location of Project: South San Joaquin River and its tributaries in San Joaquin and Stanislaus Counties, California

Total Appropriation Request: \$ 150,000

Has the project received Appropriations in the past? (Yes)

If yes, what years and at what funding levels; - FY 05 - \$100,000

**Name of Requesting Agency: South Delta Water Agency, California**

Agency Contact: C.O. Alex Hildebrand / Darryl Foreman / John Herrick - South Delta Water Agency

Address: 4255 Pacific Avenue, suite 2, Stockton, California 95207

Phone: AH - 209-823-4166 / DF – 415-309-0646 / JH 209-858-8526

Email: AH < [hildfarm@gte.net](mailto:hildfarm@gte.net) > DF [gagwaai@aol.com](mailto:gagwaai@aol.com) / Jherrlaw

DC Contact (if applicable):

#### **Briefly describe the Project:**

The Lower San Joaquin River sub-area was part of the Sacramento and San Joaquin River Basins California, Comprehensive Study for the Lower San Joaquin (interim report, December 20,2002), a regional flood control study. The COE is currently completing its Reconnaissance Phase of the project, with the granting of the appropriation request would move to the Feasibility Study Phase.

The local sponsor, the South Delta Water Agency, has conducted a companion study described as follows:

**SOUTH DELTA FLOOD CONVEYANCE PLAN** - The proposed basin wide conceptual plan includes measures to correct inadequacies in the levees and in floodway flow capacity so that they can safely convey the magnitude of flows in each river reach for which the levees and floodways were purportedly designed but where they have proven to be inadequate. The plan also includes measures to minimize the frequency with which flows occur in excess of "design flows"

The SDFCP Study is supported by all 16 of the Reclamation Districts in the South Delta through their membership in the South Delta Water Agency as well as the County of San Joaquin's Flood Control Committee.

**Does this project receive funding at the:**

A) State level (No)  
If yes, what percentage of the total cost:

B) Local level (Yes)  
If yes, what percentage of the total cost: 50% - Matching funds from the South Delta Water agency of \$150,000

**Does the project have support from other Members of Congress?**

If yes, which Members: Richard Pombo – Feinstein - Boxer (Not Confirmed)  
Cal. State Senator Mike Machado – Cal. Assembly Barbara Mathews (Not Confirmed)

**Attachments (separate cover)**

1. South Delta Flood Conveyance Plan
2. Support letters from RD – 17 and RD – 2075
3. Eco Restoration Opportunities white paper – Darryl Foreman (Pending)
4. Eco Restoration Opportunities letter – Alex Hildebrand
5. 1997 Flood Cost Letter

## **Fiscal Year 2006 Appropriation Request**

Senator Fienstien Office Washington DC.

### **E-W - South Delta Water Agency - Lower San Joaquin River sub area- Sacramento and San Joaquin River Basins California, Comprehensive Study - FY06 Approps Form.doc**

Requesting Entity: South Delta Water Agency, California

Requesting Individual: Alex Hildebrand / Darryl Foreman / John Herrick - Staff to South Delta Water Agency, 4255 Pacific Avenue, suite 2, Stockton, California 95207  
AH - 209-823-4166 / DF - 415-309-0646 / JH 209-858-8526  
Email: AH <[hildfarm@gte.net](mailto:hildfarm@gte.net)> DF [gagwaai@aol.com](mailto:gagwaai@aol.com) / Jherrlaw

Project Name: Lower San Joaquin River sub area- Sacramento and San Joaquin River Basins California, Comprehensive Study

Amount Requested: \$ 150,000

Priority: 1 of 1 request

Appropriations Bill: Energy and Water Development

Agency: US Army Corps of Engineers

Account: Lower San Joaquin River sub area- Sacramento and San Joaquin River Basins California, Comprehensive Study

Brief Description: The Lower San Joaquin River sub-area was part of the Sacramento and San Joaquin River Basins California, Comprehensive Study for the Lower San Joaquin (interim report, December 20,2002), a regional flood control study. The COE is currently completing its Reconnaissance Phase of the project, with the granting of the appropriation request would move to the Feasibility Study Phase.

The local sponsor, the South Delta Water Agency, has conducted a companion study described as follows:

**SOUTH DELTA FLOOD CONVEYANCE PLAN** - The proposed basin wide conceptual plan includes measures to correct inadequacies in the levees and in floodway flow capacity so that they can safely convey the magnitude of flows in each river reach for which the levees and floodways were purportedly designed but where they have proven

to be inadequate. The plan also includes measures to minimize the frequency with which flows occur in excess of "design flows"

The SDFCP Study is supported by all 16 of the Reclamation Districts in the South Delta as well as the County of San Joaquin.

Amount in the President's Budget Request: \$150,000

Previous Federal Appropriations History: FY 05 - \$100,000

Congressional District(s) in which the project is located: CA18 - (South San Joaquin River and its tributaries in San Joaquin and Stanislaus Counties, California)

Grantee Legal Name: US Army Corps of Engineers - Lower San Joaquin River sub area- Sacramento and San Joaquin River Basins California, Comprehensive Study

Grantee Address: Sacramento California

Local Contact Name/Title/Phone: C.O. Alex Hildebrand (Director SDWA) / Darryl Foreman (Planning Consultant – LP+E Inc.) / John Herrick - Agency Attorney) - South Delta Water Agency, 4255 Pacific Avenue, suite 2, Stockton, California 95207  
AH - 209-823-4166 / DF – 415-309-0646 / JH 209-858-8526  
Email: AH < [hildfarm@gte.net](mailto:hildfarm@gte.net) > DF [gagwaai@aol.com](mailto:gagwaai@aol.com) / Jherrlaw

Washington Contact Name: John Watts – Senator Fienstien Office Washington DC.

Washington Contact Affiliation: Policy Staff to Senator Fienstien

Washington Contact Phone: 202-224-3121

## **Section 5 – Letters**

**E-W -USACOE - South Delta Water Agency - 1997 Flood Private sector levee repair costs from Alex Hildebrand - Lower San Joaquin River sub area- Sacramento and San Joaquin River Basins California, Comprehensive Study - FY06 Approps Form.doc -**

DATE: February 7, 2005  
TO: DeeDee D'Adamo (Policy Cong. Dennis Cardoza) cc: Darryl Foreman  
FROM: Alex Hildebrand  
RE: Flood costs

The following is a status report on the compilation of 1997 costs. I have obtained information from the OES and the Corps on damages resulting from the 1997 flood and the lesser 1998 flood which occurred before repair of levee breaks and wave wash by the 1997 flood was completed. It is not clear how much of the local costs may have become a burden on FEMA and on the National Flood Insurance program. I can furnish you with all the materials I have received, but for now will try to summarize it for you.

The damage in San Joaquin County was almost all associated with the nine levee breaks within our 16 reclamation districts.

- 1) Information from County OES:
  - a) The San Joaquin County disaster claim was a little more than \$1,900,000 exclusive of road damage.
  - b) There is no firm figure on road damage, but it is estimated as \$1,250,000.
  - c) It is estimated that about 3000 people were displaced from their homes on very short notice.
  - d) Damage or total loss of 585 homes is estimated at \$59,100,000.
  - e) Business losses including dairies are estimated at \$12,500,000. (I know from personal observation that thousands of dairy cattle had to be evacuated in about 24 hours.)
  - f) There were crop losses in San Joaquin County estimated at \$13,337,000 but not all of this was in the area flooded by levee breaks.
  - g) Losses to reclamation districts were \$7,133,000. Most but not all of this was to breaks in the 16 South Delta reclamation districts.

Items a through g adds to about \$95 million dollars exclusive of repairing levee breaks and wave damage to levees.

- 2) Information from the Corps for non-federal costs was similar but not identical to those above, a through g. They were based on the Comprehensive Study Post-Flood Assessment dated March 1999.
- 3) The Corps has promised to get us the cost of levee repairs and wave wash repairs, but have not yet provided it. This will be the big number. (Estimated at \$14.9 Million)

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Director - Jerry Robinson, Chairman, Robert K. Ferguson, Vice-Chairman, Natalino Bachetti, Jack Alvarez,  
Alex Hildebrand Engineer, Counsel & Manager John Herrick

March 14, 2005

The Honorable Dianne Feinstein  
The State Senate  
331 Hart Senate Office Building  
Washington, D.C. 20510-0504

Dear Senator Feinstein:

We are asking you to help assure the modest Federal authorization and funding (\$150,000) that is needed to match local funding and continue progress toward measures that will prevent another flood like the one you personally witnessed in 1997.

You were extremely helpful in 1997, meeting locally with me and others during the flood, and assuring that the nine levee breaks in San Joaquin County were repaired as soon as possible. You then helped authorize and fund a Comprehensive Study by the U.S. Corps of Engineers in collaboration with the California Reclamation Board. That study was to develop proposals that would greatly reduce the chance of future floods in California's Central Valley, such as the 1997 flood. Unfortunately, the study lapsed without proposed plans. It was then proposed that local interests should make proposals. We have now done that in respect to the South Delta, but we need the above Federal funding to match local funding and avoid another lapse in moving toward an implemented solution.

The South Delta Water Agency has worked with the sixteen reclamation districts within the agency to develop and publish a South Delta Flood Conveyance Proposal. This conceptual plan has been presented to, and discussed with the Reclamation Board and the U.S. Corps (contact Judy Soutiere, Chief, Central Valley Section). The corps is completing a Reconnaissance Study on this South Delta plan and will then start a Feasibility Study if authorization and funds, \$150,000, are available for the Federal share. The South Delta Water Agency will be the non-federal sponsor and funder.

The plan includes correcting structural levee design deficiencies that resulted when the Corps raised the levees in the 1960's; and increasing flow capacity through Paradise Cut; and removing deposits of sediment in channels; and bank protection to protect levees and stop the loss of riparian habitat. We are currently working on a paper regarding the environmental benefits that are inherent in the plan and those that can be added. We have also worked with the San Joaquin River Flood Control Association and upstream interests and have identified four upstream measures which can reduce the large but brief peak flows that are caused by major warm storm events, and which are a major

cause of levee failures. However, those upstream measures are not included in this funding request.

We have presented this conceptual Flood Conveyance plan to numerous entities and are not aware of any opposition. These entities, in addition to the Reclamation Board and Corps, include San Joaquin County, San Joaquin County Farm Bureau, and the California Central Valley Flood Control Association. Congressman Dennis Cardoza has been very helpful, and we are now seeking support from Congressman Richard Pombo. We are advised that in the current tight budget situation, it will be important to have both House and Senate support even for this modest expense.

It has been four years now since I last had the pleasure of meeting with you as the oldest member of a Farm Bureau delegation. In closing I want to thank you again for the cordial and able efforts you have contributed to flood safety and other important issues.

With best regards,

Sincerely,

Alex Hildebrand

cc: The Honorable Richard Pombo  
Representative in Congress  
2411 Rayburn House Office Building  
Washington, D.C. 20515

The Honorable Dennis Cardoza  
Representative in Congress

435 Cannon House Office Building Washington, D.C. 20515